Monitoring Report: Swain's Lane Safe and Healthy Streets Scheme

New measures have been installed on Swain's Lane to create a "Safe & Healthy Streets" scheme as part of the Borough's COVID-19 Emergency response.

Concerns were raised from our public and stakeholder engagement about drivers using Swain's Lane as a cut through to avoid Highgate West Hill and Dartmouth Park Hill.

To address this concern, traffic restrictions were implemented on Swain's Lane banning a right turn from Swain's Lane into Bisham Gardens and from Swain's Lane into South Grove. The scheme was implemented in June 2020.

Swain's Lane Safe and Healthy Streets scheme

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These measures aimed to deter and reduce the volume of motor traffic on Swain's Lane, and to make it safer and easier for people to walk and cycle in and around the area.

To help monitor the impact of the scheme on local traffic flows available '**Before'** and **'After'** traffic data collected within and close to the Swain's Lane Safe and Healthy Streets scheme has been compared for motor vehicles and cycles. Changes in air quality and emergency services' response times have also been analysed.

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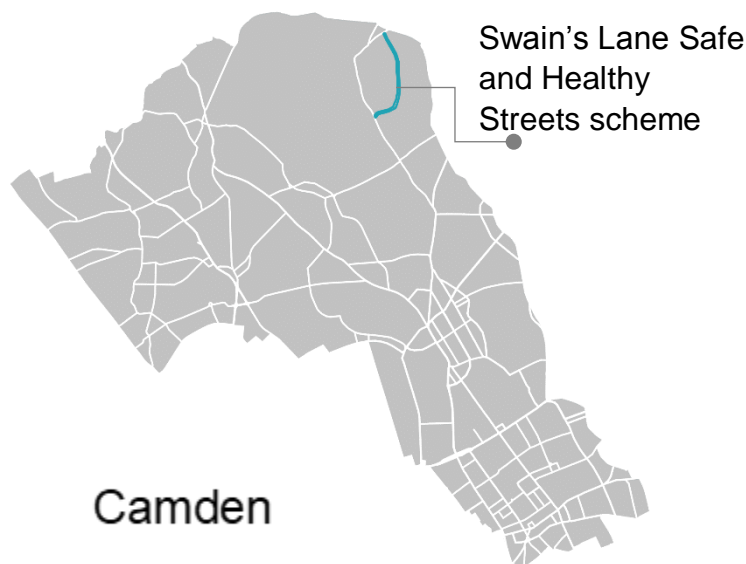
Summary

This document sets out and analyses data and other information gathered during the trial period of the Swain's Lane Safe & Healthy Streets scheme to help assess its impacts.

A review of **'Before'** and **'After'** scheme data for the Swain's Lane Safe and Healthy Streets Scheme area indicates the following:

- Traffic levels overall on Swain's Lane are **low** post scheme implementation. 'After-scheme' traffic flows on boundary roads are also lower than or comparable to 'Before-scheme'.

- A **569% increase** in Lime bicycle usage has been recorded within the Swain's Lane Safe and Healthy Streets scheme, comparing 'before' scheme data (July 2019 – March 2020) and 'after' scheme data (July 2020 – March 2021)

- An average **18% decrease** in Nitrogen Oxide (NO_2) at the monitoring station on Witanhurst Lane when comparing the raw unadjusted data for the 'before scheme' period (June – November 2019 and 'after scheme' period (June – November 2020).

- **No impact** has been identified on emergency response times from the introduction of the Swain's Lane Safe and Healthy Streets scheme.

In summary, motor vehicles have decreased on Swain's Lane by 28% (unadjusted) and 17% (adjusted). Reduced traffic flows have also been recorded on South Grove and Chester Road. An increase of 16% in traffic flow has been recorded on Highgate Hill after the implementation of the scheme. Data gathered indicates increased cycle levels within the scheme area. No impacts on emergency response times have been identified, whilst a reduction in NO_2 has also been observed on Witanhurst Lane close to the scheme.

🚗 Motor Vehicle Data

To establish changes in local traffic flows, 'Before-' and 'After-scheme' traffic counts for key links within the Swain's Lane Area Safe & Healthy Streets scheme have been compared.

'Before-scheme' data was collected using Automatic Traffic Counts (ATCs) which was already available. This includes data from 2019 for count sites 1 and 3, 2015 data for count site 5 and 2017 data for count sites 2 and 4. Counts were processed for a 24-hour period and categorised to comprise light vehicles (including motorcycles, cars and Light Goods Vehicles (LGVs) and Heavy-Duty vehicles (HDVs[1]).

'After-scheme' data was collected following the start of the trial period, in **July 2020** (count site 2) and in **December 2020** (count sites 1, 3, 4 and 5) for a 14-day period using ATCs for all count sites. A 24-hour period was also analysed to enable a comparison between 'Before-scheme' and 'After-scheme' data.

The location of the 'Before-scheme' and 'After-scheme' count points are shown below.

We acknowledge that a lot of complaints were received from residents raising concerns about the impact of the scheme and increased motor vehicle using Pond Square during the trial period. All comments have been captured in the Commonplace responses and will be considered as part of the consultation and decision making process. Unfortunately, 'before' data for Pond Square was not available, so we are unable to compare 'before' and 'after' data and assess the impacts of the scheme on this street. However, we have undertaken surveys to capture vehicles turning into Pond Square from South Grove after scheme implementation, in July and October 2020, the results of which are also shown below.

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[1] Heavy Duty Vehicles include Heavy Goods Vehicles and Buses.

Swain's Lane Safe and Healthy Streets Scheme Traffic Count Sites
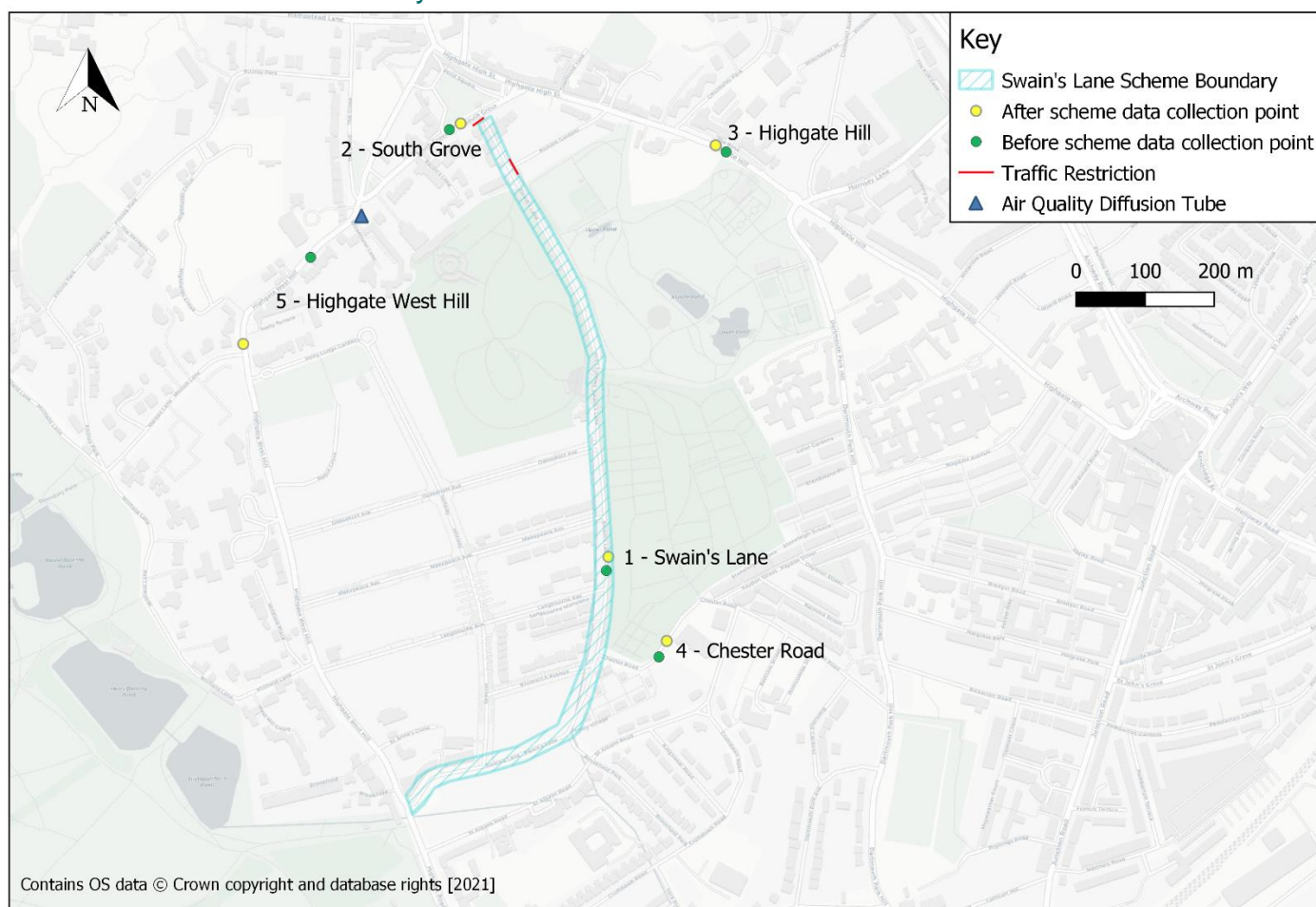
Motorised traffic counts have been adjusted to account for seasonality and for changes in travel patterns due to COVID-19. Data collected in 2020 has been normalised to a 2019 (pre-COVID) baseline and subsequently adjusted for seasonality to ensure 'Before' and 'After' scheme counts are comparable. An adjustment factor for motorised vehicles has been derived from continuous count data 2019-2020 for Inner-London. The adjusted and unadjusted average daily car flows for the Swain's Lane Safe and Healthy Streets scheme are shown below. The 'Before-scheme' data collected prior to 2019 has not been adjusted due to the unavailability of comparable continuous data. See Appendix A for further details on the methodology used and Appendix B for a breakdown of the data.

Swain's Lane Safe and Healthy Streets Scheme Daily Traffic Flow

Site ID	Road Name	Between	Direction	Unadjusted			Adjusted		
				Before	After	% change	Before	After	% change
1	Swain's Lane	Makepeace Ave and Langbourne Ave	Two-way	1,951	1,402	-28%	1,819	1,506	-17%
2	South Grove	Pond Square and Swains Lane	Two-way	2,254	1,950	-13%	2,254*	2,149	-5%
3	Highgate Hill	Cholmeley Park and B540	Two-way	13,010	12,957	0%	12,908	15,130	17%
4	Chester Road	Swain's Lane and Raydon St	Two-way	3,192	2,584	-19%	3,192*	3,017	-5%
5	Highgate West Hill	Oakeshott Avenue and South Grove	Two-way	12,805	11,064	-14%	12,805*	12,919	1%

Continuous traffic data not available to adjust Count Site 2, 4 and 5 'Before-Scheme' data

The results indicate lower traffic flows 'After-scheme' in both the unadjusted and adjusted scenarios at the count point on Swains Lane (count site 1). Traffic levels have also decreased on South Grove (count site 2), Chester Road (site 4 - located close to Swains Lane), and on Highgate West Hill (count site 5). Traffic levels on Highgate Hill (count site 3) are commensurate in the unadjusted case. When allowing for adjustments due to COVID-19 and seasonality, the results suggest a 17% increase in traffic flows on Highgate Hill (count site 3). Some of this increase could potentially be caused by motor vehicles using Highgate Hill instead of Swain's Lane where traffic restrictions have been introduced, although the increase on Highgate Hill (additional 2,222 vehicles) far exceeds the drop in motor vehicles using Swain's Lane (decrease of 313 vehicles).

Data was also collected on the number of vehicles heading westward on South Grove and turning north into Pond Square after scheme implementation, for three days each in July and October 2020. In July this includes Thursday 23rd, Saturday 25th and Tuesday 28th. In October this captured Saturday 10th, Tuesday 13th and Thursday 15th. The data excludes cyclists. This data, which is presented below, has not been adjusted for seasonality nor for the effects of COVID-19 on traffic patterns, and therefore suggests that traffic levels may have increased.

Day of count	July 2020 (no. of vehicles turning)	October 2020 (no. of vehicles turning)
Weekday Tuesday	237	406
Weekday Thursday	257	321
Weekend Saturday	125	238

🚴 Cycle Data

Cycle data collected within the Swain's Lane Safe and Healthy Streets scheme by Lime (bike rental operator) over 2019, 2020 and 2021 shows that Lime cycle usage increased following the scheme's implementation. The graph below illustrates the absolute number of trips starting or ending in the Swain's Lane Safe & Healthy Streets scheme from 2019 to the most recently available data from 2021.

Daily cycle trips starting or ending in Swain's Lane Safe and Healthy Streets scheme 2019-2021 (Lime cycle counts)
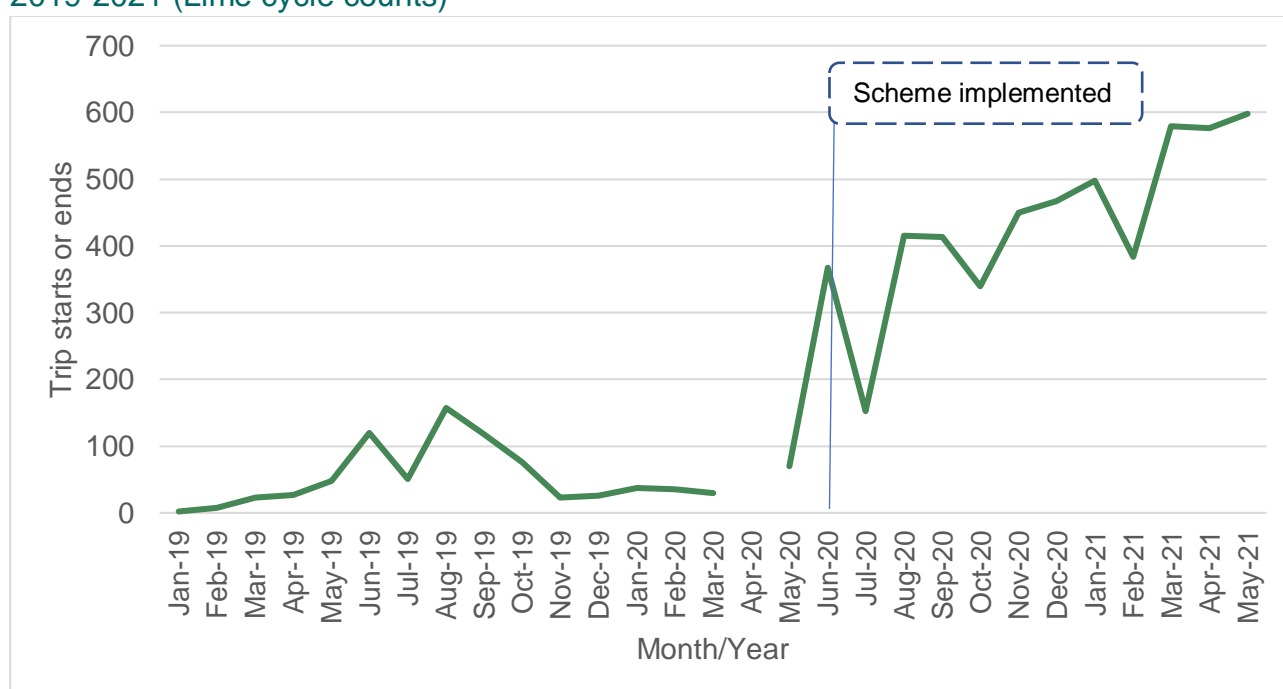
N.B. Data was not available for April 2020 from Lime

Data from **July 2019-March 2020** (**Before**-scheme) and **July 2020-March 2021** (**After**-scheme) shows that Lime bike usage increased from 553 trips a day to 3,697 trips a day starting or ending in the scheme area – an increase of 569%. In May 2021, Lime recorded the highest number of e-bike rides in the Swain's Lane Safe & Healthy Streets scheme area.

Air Quality

Air quality monitoring data for the Swain's Lane Safe and Healthy Streets scheme has been collected from a diffusion tube on Witanhurst Lane, close to the northern end of Swain's Lane, to monitor levels of Nitrogen Oxide (NO_2).

The most recent data available is for **June-November 2020,** after the scheme was constructed, which has been compared to an equivalent period before the scheme was implemented, between **June-November 2019**. This data indicates that the site has experienced an average reduction in NO_2 of 18%. The raw data is provided in Appendix C.

Witanhurst Lane Air Quality Monitoring (NO_2) Station
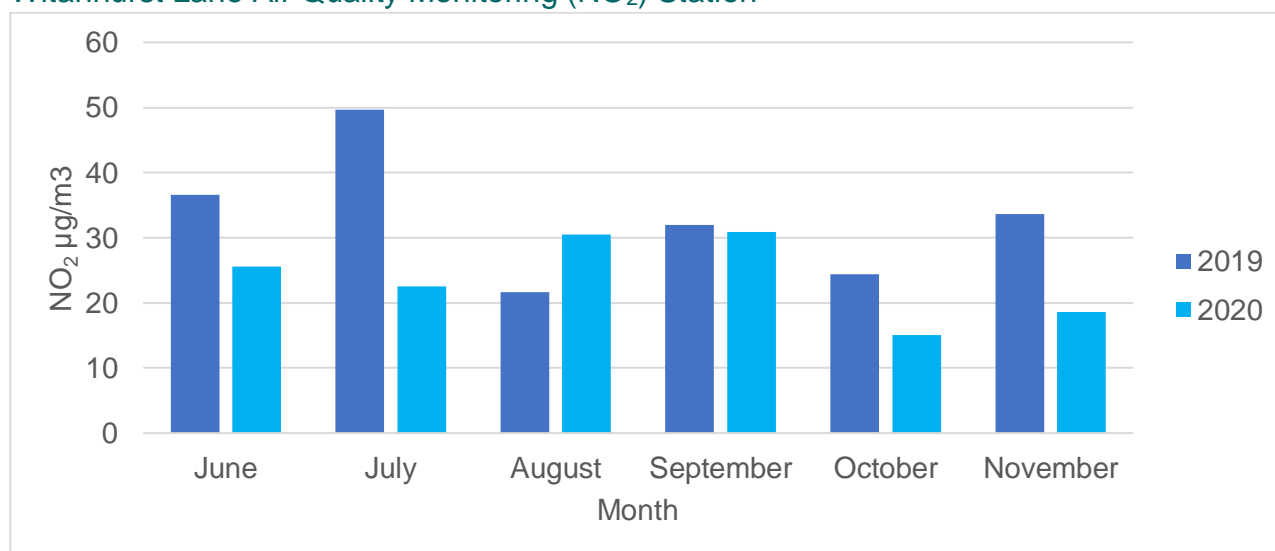
No continuous data is available between December 2020 and March 2021; however, the most recent data available, collected in April 2021, shows that raw and unadjusted NO_2 concentrations were 26.79µg/m^3.This data is raw and unadjusted against the Government's bias adjustment factor.

The bias-adjusted and average annual mean[2] NO_2 concentration for Witanhurst Lane for the entirety of 2020 was 24.27µg/m^3. In 2019 this value was 33.26µg/m^3. When compared to the legal limit for NO_2 (40µg/m^3), levels on Witanhurst Lane were compliant over the 2019 and 2020 periods.

It should be noted that air pollution is caused by multiple factors and, whilst traffic is an important contributor, it may be difficult to single out the impact of an individual factor.

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[2] Annual mean figures have been 'bias adjusted' which corrects for any deviation between the NO_2 concentrations measured by diffusion tubes and the 'true' NO_2 concentration in the air as measured by a more accurate electrochemical sensor

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🚑 Emergency Response Times

The London Fire Brigade (LFB) monitors the time it takes its vehicles to attend emergencies (attendance times). They use average attendance times because there are a significant number of variables that can impact attendance times – for example, responding vehicles are not always setting off from the same place.

In its *'Incident response times'* report published in 2020[3], the LFB set London-wide target response times (time the emergency call is answered to the arrival of a fire engine with crew at the incident scene), which for 2020 were:
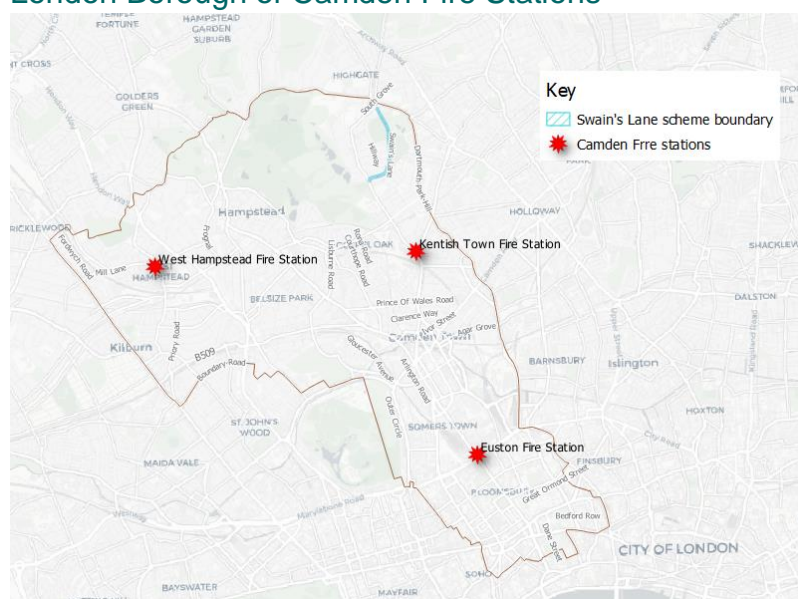
- To get the first fire engine to an incident within an average of **six minutes**.
- To get a fire engine anywhere in London within **12 minutes** on 95 per cent of occasions.

In this report the LFB also evaluates the impact of the Safe and Healthy Streets schemes (or Low Traffic Neighbourhoods) introduced in London in response to COVID-19 on LFB's emergency response times, and concluded that Safe and Healthy Streets scheme have not slowed down response times. Within its report the LFB notes:

"*During the pandemic we have had more resources that are immediately available to respond and Roads (during lockdown periods) have been quieter. That being the case, we haven't yet noticed any impact on our attendance times due to the LTN schemes established in 2020".*

The LFB's Mobilisation Records[4] have also been analysed for fire station locations in Camden near the Swain's Lane Safe & Healthy Streets scheme (see map).

London Borough of Camden Fire Stations

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[3] https://data.london.gov.uk/dataset/incident-response-times-fire-facts
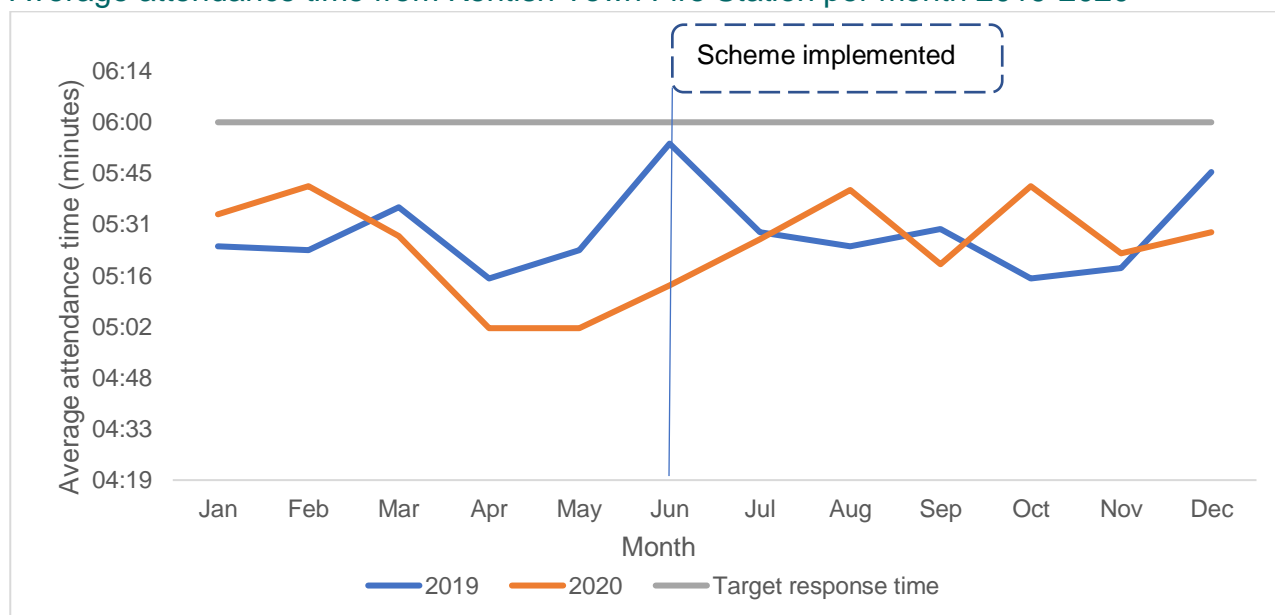[4] https://data.london.gov.uk/dataset/london-fire-brigade-mobilisation-records

The graph below compares the average response times for the closest fire station at Kentish Town to the Safe and Healthy Streets Scheme in 2019 and 2020.

Average attendance time from Kentish Town Fire Station per month 2019-2020

Overall, the data indicates a 1% reduction in attendance times from Kentish Town Fire Station between 2019 and 2020. The graph demonstrates that the LFB is consistently meeting or bettering their response time targets of 6 minutes for a first fire engine to arrive, which supports the conclusions drawn by the LFB at this point regarding Safe and Healthy Streets Scheme.

Camden Council continues to engage and consult with the London Ambulance Service (LAS) and Metropolitan Police Service (MPS) as part of the implementation of its Safe & Healthy Streets programme and explores ways to determine the effects of the Safe & Healthy Streets schemes on the emergency response times.

Appendix A: Traffic Data Methodology

Traffic Count Data

To monitor and review the impacts of the scheme, traffic count data has been collected before and after the opening of the scheme as follows:

- Before-scheme: available Automatic Traffic Counters[5] were used to collect data on hourly traffic volumes by direction and vehicle class before the scheme was constructed. The average daily traffic volume (24 hour) was calculated and reported by vehicle class for this period. The dates for data collection were as follows:
  - Site 5 data was collected by ATCs between 1 and 14 March 2015.
  - Sites 2 and 4 data was collected by ATCs between 5 and 18 November 2017.
  - Sites 1 and 3 data was collected by ATCs between 10 and 23 March 2019.

- After-Scheme: Automatic Traffic Counters were used to collect data after the scheme was constructed on hourly traffic volumes by direction and vehicle class. The data was collected between 5 and 18 December 2020, with the exception of site 2 which was collected between 23 and 29 July 2020. The average daily traffic volume (24 hour) was calculated and reported by vehicle class for this period to allow comparison to the '**Before**-scheme**'** data.

If a full day of data was unavailable from the traffic counts, then this day was excluded from the average daily calculation of traffic volumes. The number of days of data available for each site is identified below.

Number of days of available post-scheme traffic survey data (sample)

Site ID	Road Name	Between	Before-scheme	After-scheme
1	Swain's Lane	Makepeace Ave and Langbourne Ave	14	14
2	South Grove	Pond Square	14	7
3	Highgate Hill	Cholmeley Park and B540	14	9
4	Chester Road	Swain's Lane and Raydon St	14	14
5	Highgate West Hill	Oakeshott Avenue and South Grove	14	14

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[5] Automatic Traffic Counter – Typically pneumatic tubing that runs across the road, which records vehicle volumes and classification (by axle base separation) when wheels pass over the tube.

Traffic Count Data Adjustment

To monitor the effects of the scheme it has been necessary to complete traffic data collection during 2020 and at a time when travel patterns will have been affected by COVID-19 restrictions.

To account for this disruption and the influence of seasonality[6], traffic data has been adjusted as follows:

1) Data collected in 2020 has been normalised to a 2019 (pre-COVID-19) baseline using factors for daily traffic derived from continuous traffic count data provided by Transport for London for the Inner Transport for London Rd Network (TLRN) for the appropriate month. The factor used to convert 2020 data to a 2019 baseline for July was 1.1132 and for December was 1.1494. For example, average daily traffic volumes in December 2020 were 13% lower in Inner London than in December 2019 (see below).

Data was available from 09 March.
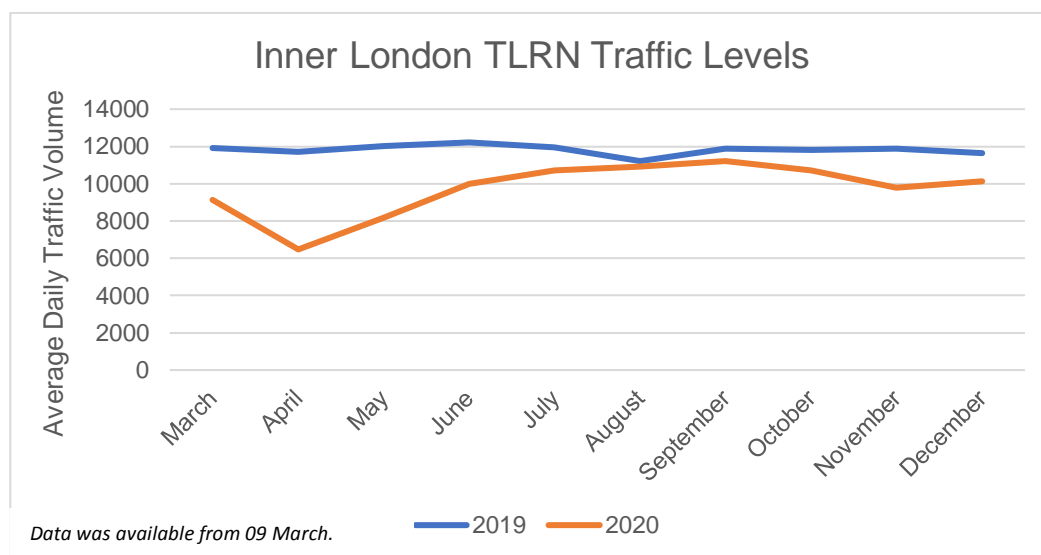
2) The data has been further adjusted to account for seasonal variations in traffic flows using factors derived from comparing daily average volumes in March 2019, July 2019 and December 2019 to the annual daily average values for 2019 from the Transport for London dataset. The seasonality factor derived for daily traffic in March is 0.9921, July is 0.9898 and in December is 1.0159.

The data collected pre-2019 has not been adjusted due to the unavailability of comparable continuous data.

The adjusted results provide an indication of the impacts of the scheme without COVID-19 and without the effects of seasonal variation in travel patterns. Both the unadjusted (raw) and adjusted traffic data are presented for the scheme in the interests of transparency.

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[6] Seasonality – Seasonal variation in travel patterns associated with changes in weather including temperature and rainfall.

Appendix B: Traffic Data

Swain's Lane Safe and Healthy Streets Scheme Daily Traffic Flow – Raw Data

Site ID	Road Name	Description	Direction	Before			After		
				Light*	Heavy**	Total	Light	Heavy	Total
1	Swain's Lane	Between Makepeace Ave and Langbourne Ave	Northbound	1,683	150	1,833	1,251	39	1,289
1	Swain's Lane	Between Makepeace Ave and Langbourne Ave	Southbound	107	11	117	108	4	112
1	Swain's Lane	Between Makepeace Ave and Langbourne Ave	Combined	1,790	161	1,951	1,358	43	1,402
2	South Grove	Between Pond Square	Eastbound	978	180	1,158	571	42	613
2	South Grove	Between Pond Square	Westbound	1,041	54	1,095	1,235	102	1,337
2	South Grove	Between Pond Square	Combined	2,019	234	2,254	1,806	144	1,950
3	Highgate Hill	Between Cholmeley Park and B540	Northbound	5,776	633	6,409	5,809	462	6,270
3	Highgate Hill	Between Cholmeley Park and B540	Southbound	5,943	658	6,601	6,248	439	6,687
3	Highgate Hill	Between Cholmeley Park and B540	Combined	11,719	1,291	13,010	12,057	900	12,957
4	Chester Road	Between Swain's Lane and Raydon St	Northbound	991	125	1,116	840	122	963
4	Chester Road	Between Swain's Lane and Raydon St	Southbound	1,877	199	2,076	1,481	141	1,621
4	Chester Road	Between Swain's Lane and Raydon St	Combined	2,868	324	3,192	2,321	263	2,584
5	Highgate West Hill	Between Oakeshott Avenue and South Grove	Eastbound	5,387	415	5,802	4,999	301	5,299
5	Highgate West Hill	Between Oakeshott Avenue and South Grove	Westbound	6,502	501	7,003	5,473	292	5,765
5	Highgate West Hill	Between Oakeshott Avenue and South Grove	Combined	11,889	916	12,805	10,472	592	11,064

*Light=Light vehicles including motorcycles, cars and LGVs **Heavy=OGVs and PSVs

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Swain's Lane Safe and Healthy Streets scheme Daily Traffic Flow – Adjusted Data

Site ID	Road Name	Description	Direction	Before			After		
				Light*	Heavy**	Total	Light	Heavy	Total
1	Swain's Lane	Between Makepeace Ave and Langbourne Ave	Northbound	1,670	149	1,819	1,460	45	1,506
1	Swain's Lane	Between Makepeace Ave and Langbourne Ave	Southbound	106	10	116	126	5	131
1	Swain's Lane	Between Makepeace Ave and Langbourne Ave	Combined	1,776	160	1,935	1,586	50	1,637
2	South Grove	Between Pond Square	Eastbound	978	180	1,158	629	46	675
2	South Grove	Between Pond Square	Westbound	1,041	54	1,095	1,360	113	1,473
2	South Grove	Between Pond Square	Combined	2,019	234	2,254	1,990	159	2,149
3	Highgate Hill	Between Cholmeley Park and B540	Northbound	5,730	628	6,359	6,782	539	7,322
3	Highgate Hill	Between Cholmeley Park and B540	Southbound	5,896	653	6,549	7,296	512	7,808
3	Highgate Hill	Between Cholmeley Park and B540	Combined	11,627	1,281	12,908	14,078	1,051	15,130
4	Chester Road	Between Swain's Lane and Raydon St	Northbound	991	125	1,116	981	143	1,124
4	Chester Road	Between Swain's Lane and Raydon St	Southbound	1,877	199	2,076	1,729	164	1,893
4	Chester Road	Between Swain's Lane and Raydon St	Combined	2,868	324	3,192	2,710	307	3,017
5	Highgate West Hill	Between Oakeshott Avenue and South Grove	Eastbound	5,387	415	5,802	5,837	351	6,188
5	Highgate West Hill	Between Oakeshott Avenue and South Grove	Westbound	6,502	501	7,003	6,391	340	6,731
5	Highgate West Hill	Between Oakeshott Avenue and South Grove	Combined	11,889	916	12,805	12,228	691	12,919

*Light=Light vehicles including motorcycles, cars and LGVs **Heavy=OGVs and PSVs

N.B. 'Before-scheme' data is unadjusted for count sites 2,4 and 5 due to the required continuous data not being available

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Appendix C: Air Quality Data

Raw air quality data for Swain's Lane (Witanhurst Lane) monitoring site

2019 raw NO$_2$ (µg/m^3)		2020 raw NO$_2$ (µg/m^3)		% Change
Jun-19	36.58	Jun-20	25.53	-30%
Jul-19	27.10	Jul-20	18.85	-30%
Aug-19	25.27	Aug-20	24.60	-3%
Sep-19	35.63	Sep-20	29.35	-18%
Oct-19	33.19	Oct-20	29.79	-10%
Nov-19	47.30	Nov-20	40.64	-14%

Bias-adjusted and average annual mean air quality data for Swain's Lane (Witanhurst Lane) monitoring site

Year	Bias-adjusted average annual mean (µg/m^3)
2019	33.26
2020	26.79

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Appendix D: Emergency Response Times

Kentish Town Fire Station average response times (in seconds)

Month	2019	2020	% change
Jan	325	334	3%
Feb	324	342	5%
Mar	336	328	-2%
Apr	316	302	-5%
May	324	302	-7%
Jun	354	314	-11%
Jul	329	327	-1%
Aug	325	341	5%
Sep	330	320	-3%
Oct	316	342	8%
Nov	319	323	1%
Dec	346	329	-5%
Total	**329**	**325**	**-1%**

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